MINNESOTA POLLUTION CONTROL AGENCY

Clean Water Act Section 401 Water Quality Certification Program Fact Sheet

Federal Permitting Agency Contact	Project Proposer	Facility Name
Mr. Chad Konickson Regulatory Branch Chief U.S. Army Corps of Engineers 180 Fifth Street East, Suite 700 St. Paul, MN 55101	Ms. Jennifer Saran Poly Met Mining, Inc. Suite 2060, 444 Cedar Street St. Paul, MN 55101	NorthMet Project 6500 County Road 666 Hoyt Lakes, MN 55750

Public Comment Period Begins: January 31, 2018
Period Ends: March 16, 2018

Watersheds of Interest:

- St. Louis River (HUC 04010201)
  - Embarrass River Watershed
  - Partridge River Watershed

Proposed Action: Section 401 Water Quality Certification

Section 401 Certification Contact
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194
Phone (651) 757-2455 or (833) 722-9016

Contents

Purpose and participation

Applicable statutes

This fact sheet has been prepared according to Minn. R. 7001.0100, subp. 3, regarding a draft Section 401 Certification to conduct an activity that will result in discharge into waters of the State of Minnesota.

This Fact Sheet for the draft NorthMet Mining Project 401 Certification was prepared because the Commissioner finds the project is the subject of widespread public interest or involves issues of major importance to the agency or to the public. Past public comment periods relating to this project have demonstrated widespread public interest.

Purpose

This fact sheet outlines the principal issues related to the preparation of this draft certification and documents the decisions that were made in the determination of the conditions of this draft certification.

Public participation

You may submit written comments on the terms of the draft certification or on the MPCA's preliminary determination during the public comment period (January 31, 2018, through March 16, 2018). Your written comments must include the following:

1. A statement of your interest in the request for certification or the draft certification.
2. A statement of the action you wish the MPCA to take, including specific references to sections of the draft certification that you believe should be changed.
3. The reasons supporting your position, stated with sufficient specificity as to allow the MPCA to investigate the merits of your position.

You may also request that the MPCA hold a public informational meeting. A public informational meeting is an informal meeting which the MPCA may hold to help clarify and resolve issues.

In accordance with Minn. R. 7001.0110, your petition requesting a public informational meeting must identify the matter of concern and must include the following: items one through three identified above; a statement of the reasons the MPCA should hold the meeting; and the issues you would like the MPCA to address at the meeting.

The MPCA will host public informational meetings to discuss a draft air permit, a draft water quality permit, and a draft 401 certification for the NorthMet Project:

(1) Wednesday, February 7, 2018
Mesabi East High School
601 N 1st St W, Aurora, MN 55705
4:00-9:00 p.m. open house
6:00-9:00 p.m. public comment forum

(2) Thursday, February 8, 2018
Duluth Entertainment Convention Center (DECC)

350 Harbor Drive, Duluth, MN 55802
1:00-9:00 p.m. open house
6:00-9:00 p.m. public comment forum

These public meetings will be held jointly with the Minnesota Department of Natural Resources on their draft permit to mine.

During the open house, technical staff will be available to answer questions on the draft permits. PolyMet representatives will also be present. Comments on the draft permits will be accepted at these meetings. Stenographers will be available to record oral comments. In addition, comment boxes will be available for submitting written comments.

In case of a weather-related cancelation, the following alternative meeting dates have been established: 1) Wednesday, February 21, 2018, at the Mesabi East High School as a substitute for the February 7 meeting; and 2) Thursday, February 22, 2018, at the DECC as a substitute for the February 8 meeting. The MPCA will notify the public of any cancellations, time, or venue changes via the state's PolyMet email distribution list, press release, and/or social media.

In addition, you may submit a petition for a contested case hearing. A contested case hearing is a formal hearing before an administrative law judge. Your petition requesting a contested case hearing must include a statement of reasons or proposed findings supporting the MPCA decision to hold a contested case hearing pursuant to the criteria identified in Minn. R. 7000.1900, subp. 1, and a statement of the issues proposed to be addressed by a contested case hearing and the specific relief requested. To the extent known, your petition should include a proposed list of witnesses to be presented at the hearing, a proposed list of publications, references, or studies to be introduced at the hearing, and an estimate of time required for you to present the matter at hearing.

You must submit all comments, requests, and petitions during the public comment period identified on page one of this notice. All written comments, requests, and petitions received during the public comment period will be considered in the final decisions regarding the certification. If the MPCA does not receive any written comments, requests, or petitions during the public comment period, the Commissioner or other MPCA staff as authorized by the Commissioner will proceed to make the final decision concerning the draft certification.

Comments, petitions, and/or requests must be submitted by the last day of the public comment period. Comments, petitions, and/or requests may be submitted in one, or both, or the following ways, from January 31, 2018 through March 16, 2018:

Online: To submit comments online, please visit the Interagency PolyMet Permitting Portal at http://polymet.mn.gov/ and following commenting instructions.

By mail: PolyMet 401 Certification Comment, Minnesota Pollution Control Agency, 520 Lafayette Road North, St. Paul, MN 55155-4194

Questions may be directed to the MPCA at (651) 757-2455 or (833) 722-9016.

The certification will be issued if the MPCA determines that the proposed Permittee or Permittees will, with respect to the facility or activity to be certified, comply or undertake a schedule to achieve

compliance with all applicable state and federal water pollution control statutes and rules administered by the MPCA and the conditions of the certification and that all applicable requirements of Minn. Stat. ch. 116D and the rules promulgated thereunder have been fulfilled.

More detail on all requirements placed on the facility can be found in the certification document.

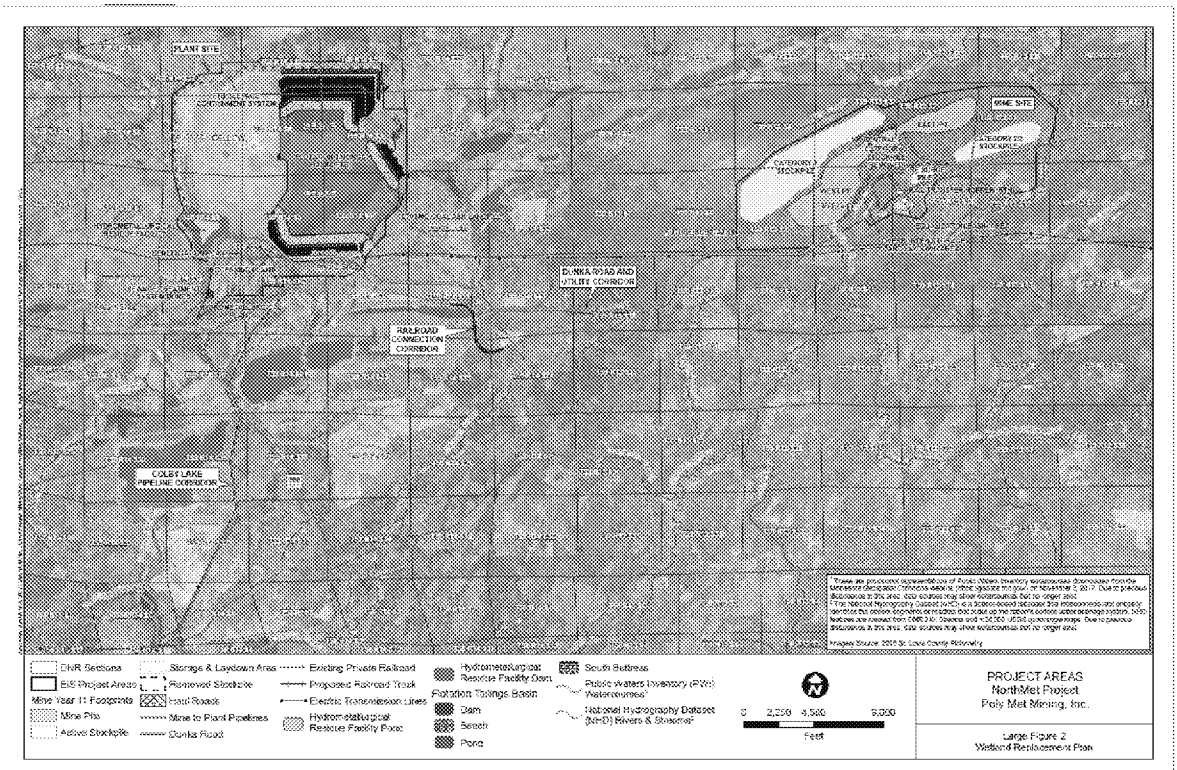
Facility Description

Introduction

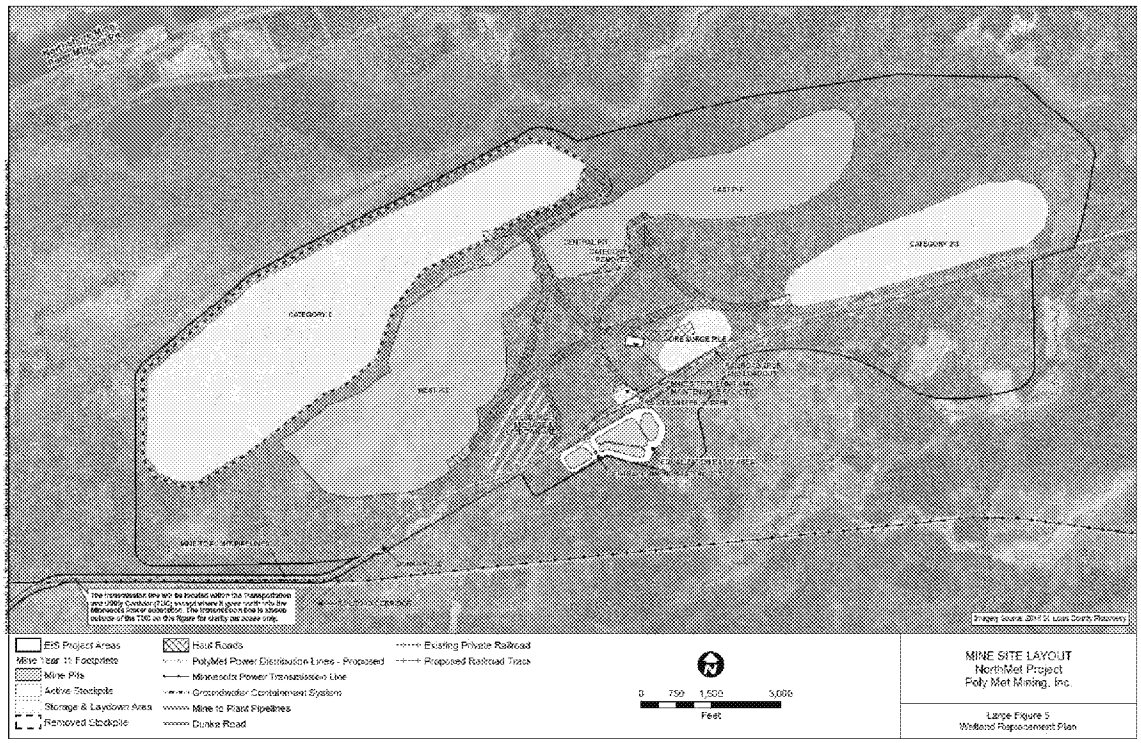
PolyMet initially submitted its Wetland Permit Application for the NorthMet Project (Project) to the U.S. Army Corps of Engineers (USACE) in July 2004 (USACE File # 1999-5528-JKA) to fulfill the requirements of Sections 401 and 404 of the Clean Water Act (CWA). This 2004 Wetland Permit Application initiated an assessment of the potential scope of environmental review under the National Environmental Protection Act (NEPA) and the Minnesota Environmental Protection Act (MEPA). In August 2013, an updated Wetland Permit Application was submitted to the USACE, which supplemented the 2004 Application with more recent Project plans. In December 2017, the Wetland Replacement Plan was submitted to the Minnesota Department of Natural Resources (DNR) under the Wetland Conservation Act (WCA). The Wetland Replacement Plan provides updated information that is consistent with PolyMet's request for 401 Certification, its application for a Permit to Mine, and with the information currently submitted by PolyMet to USACE as part of the Section 404 permitting. Additionally, PolyMet submitted its Surface Water Antidegradation Evaluation for the NorthMet Waste Water Treatment System (WWTS) Discharge in October 2017 and its Section 401 Certification Antidegradation Assessment in December 2017. MPCA relied on the documents listed in this paragraph and other available information in the record for the Section 401 Certification.

Background Information

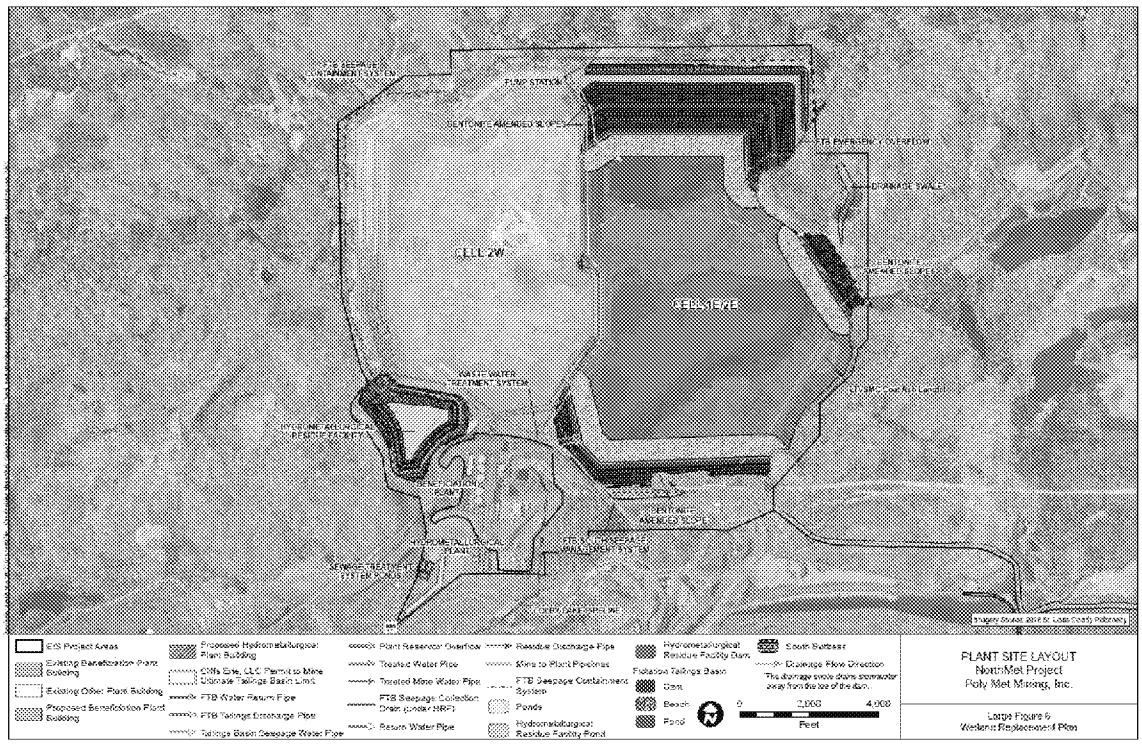
Poly Met Mining, Inc. (PolyMet) proposes to develop a mining facility that would extract and process polymetallic ore from the NorthMet ore body, to supply copper, nickel, cobalt, gold and platinum-group-elements to the world market. The proposed mine and processing facilities, known as the Project (often referred to publicly as the NorthMet Project), are described in detail in the Wetland Permit Application dated August 2013 and the Wetland Replacement Plan dated December 2017. PolyMet plans to mine approximately 225 million tons of ore and 308 million tons of waste rock over 20 years. The Project includes five areas: Mine Site, Plant Site (including the Process Plant area, Tailings Basin, Hydrometallurgical Residue Facility), the Transportation and Utility Corridors (including the Dunka Road Utility Corridor), the Railroad Connection Corridor and the Colby Lake Pipeline Corridor. Ore will be excavated at the Mine Site and hauled by railroad approximately 6 miles west to the Plant Site for processing. The road, railroad, and utility and pipeline corridors will connect the Mine Site and the Plant Site. Project areas are shown below.



The Mine Site will occupy approximately 3,015 acres. The Project will develop open mine pits (up to 528 acres), stockpiles (up to 740 acres), and supporting infrastructure (up to 451 acres). Mine Site environmental controls will include, among other features, liners and containment systems to collect seepage from stockpiles, a cover to limit infiltration through the permanent stockpile after closure, and a Waste Water Treatment System (WWTS) to treat water that comes in contact with mining features. Mine water collected at the Mine Site will be conveyed to and treated at the Plant Site WWTS for use in ore processing. During operations, there will be no direct discharge of treated waste water from the Mine Site to waters of the U.S. or waters of the state. Mine Site features are shown below.



The Plant Site is a brownfield location, which occupies approximately 4,417 acres. At the Plant Site, the Project will upgrade existing facilities (including Beneficiation Plant, tailings basin, Area 1 and Area 2 Shops, Sanitary Treatment Plant, rail connections, access roads) and construct new facilities, including Hydrometallurgical Plant, Hydrometallurgical Residue Facility (HRF), Concentrate Dewatering/Storage Building, and WWTS on previously disturbed areas. The Flotation Tailings Basin (FTB) will be constructed atop the existing LTVSMC tailings basin by staged construction of new dams. The FTB and existing LTVSMC tailings basin will be referred to collectively as the "Tailings Basin" in this fact sheet. Plant Site features are shown below.



Plant Site environmental controls during mining operations will include bentonite cover systems to limit infiltration of oxygen and water through the FTB dams and seepage capture systems to collect seepage from the Tailings Basin. During reclamation and long-term closure these environmental controls will continue to operate, and additional bentonite amendments will be added to the FTB beaches and pond bottom. Most water used in processing will be recycled from the FTB Pond for use. A waste water treatment system will be constructed to treat any water that cannot be recycled prior to discharge to the environment. If makeup water is needed for processing, it may be provided via the Colby Lake Pipeline.

PolyMet proposes to impact 127 wetlands, covering a total of approximately 930.2 acres. Direct impacts from excavation and/or fill are proposed for 903.3 acres of wetland, and the remaining 26.9 acres would become fragmented wetlands (the remnants of a directly impacted wetland). PolyMet has proposed to mitigate the impacts through the purchase of no less than 1282 credits from the Superior Mitigation Bank, located in the St. Louis River watershed. Arrangements for this credit purchase are already in place, including any necessary approvals from the Minnesota Board of Soil and Water Resources.

Facility Location

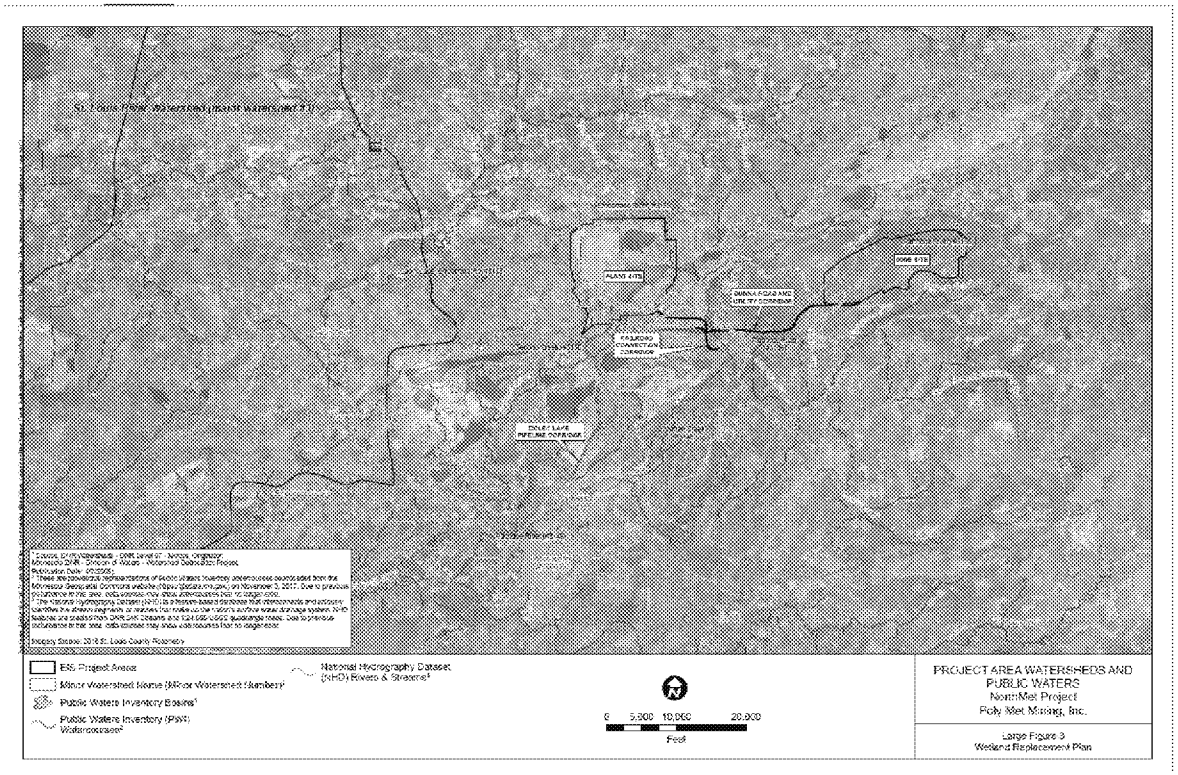
The Project is located in St. Louis County, on the eastern end of the Mesabi Iron Range, about 60 miles north of Duluth, and 6 miles south of Babbitt, Minnesota. The Mine Site is within the current exterior boundaries of the Superior National Forest near the western end of a belt of copper-nickel deposits on the northwestern contact of the Duluth Complex. The Plant Site includes much of the former LTVSMC taconite plant property, and is located approximately 8 miles west of the Mine Site.

The Project is in the following sections: Sections 5 and 6, Township 58 North, Range 14 West; Sections 1, 2, 3, 4, 9, 10, 11, 12, 15, 16, 17, and 18, Township 59 North, Range 13 West; Sections 2, 3, 4, 5, 8, 9,

10, 13, 14, 15, 16, 17, 18, 20, 23, 24, 29, and 32, Township 59 North, Range 14 West; and Sections 32, 33, and 34, Township 60 North, Range 14 West.

Site Wetlands and Streams

The Project is located near the headwaters of the Partridge River and Embarrass River watersheds. The Partridge River and the Embarrass Rivers are both tributary to the St. Louis River, which is located within the Lake Superior Basin. Surface water features are shown below.



The Project would disturb 1,725 acres of surface lands at the Mine Site and have the greatest effect on upland forest land cover types. The majority of additional ground disturbance for the Project, including approximately 2,190 acres of Plant Site (including the Colby Lake Pipeline Corridor) and 120 acres of Transportation and Utility Corridors will occur in already disturbed locations.

Of the 127 wetlands that will be directly impacted, approximately 62% are rated high quality, 6% are rated as moderate quality, and 32% are rated as poor quality. Approximately 1,862 acres of wetlands were identified in the Project area, with direct impacts to 930.2 acres, and fragment impacts to 26.9 acres. The majority of estimated direct and fragment wetland impacts will occur at the Mine Site (83%, or 778 acres), followed by the Plant site (16%, or 145 acres), and road and railroad and utility corridors (less than 1%, or 7 acres). Wetland impacts based on type will be approximately 56% coniferous bog, 12% alder thicket, 9% coniferous swamp, 8% shallow marsh, 8% deep marsh, 3% sedge meadow, 2% wet meadow, 1% hardwood swamp, 1% open bog, and less than 1% shrub-carr.

Mine Site

The Partridge River flows through Colby Lake and Whitewater Reservoir. Tributaries to the Partridge River include Wyman Creek, Wetlegs Creek, Colvin Creek, Longnose Creek, Yelp Creek, Stubble Creek,

four unnamed creeks, South Branch of the Partridge River, and Second Creek. The Mine Site and portions of the Plant Site, Dunka Road and Utility Corridor, Railroad Connection Corridor, and Colby Lake Water Pipeline Corridor are located within the Upper Partridge River Watershed.

The hydrogeologic setting of the Partridge River watershed consists of a thin veneer of heterogeneous unconsolidated deposits (glacial till) underlain by fractured bedrock (Duluth Complex in most of the Mine Site area and Virginia Formation in the northern portion of the area). In the Mine Site area, saturated conditions exist within the unconsolidated deposits and bedrock and the depth to groundwater is typically less than 10 feet. The water table is generally a subdued replica of the land surface, with groundwater divides in the area expected to roughly coincide with surface water divides. Wetlands are common, covering approximately 43% of the Mine Site.

Under existing conditions, runoff from the northernmost area of the Mine Site generally drains north into One Hundred Mile Swamp and associated wetlands along Yelp Creek and the Partridge River. These wetlands form the headwaters of the Partridge River, which meanders around the east end of the Mine Site before turning southwest. Runoff from the majority of the Mine Site naturally drains to the south through culverts under Dunka Road and the adjacent rail line, into the Partridge River downstream of the Dunka Road crossing. The Partridge River hydrology is affected by periodic and variable dewatering of the Peter Mitchell Pit operated by the Northshore Mining Company near the headwaters of the Partridge River, upstream of the proposed Mine Site.

Site conditions at the Mine Site preclude the use of computer modeling to predict the groundwater cone of depression and resultant impacts around the mine pit. Unconsolidated surficial deposits observed at the Mine Site are relatively heterogeneous and range from very dense clay to well-sorted sand. The hydraulic conductivity of these surficial deposits range from 0.012 to 31 feet per day, and bedrock outcrops are present across the area which may hydraulically separate or isolate different areas of the surficial deposits. The co-lead agencies during the Project Environmental Impact Statement (EIS) process ultimately decided to evaluate similarly situated abandoned mine pits as a surrogate for predictions of potential impacts.

The probability of accurately specifying the location, extent, or degree of wetland impacts from the drawdown effect of the proposed mine pit prior to construction is very low. If the Project is authorized, these impacts would ultimately be identified through various types of monitoring. Impacts would likely range from small changes to hydrology resulting in a change in wetland type to the complete loss of wetland hydrology. It is likely that data from several growing seasons would be necessary to draw definitive conclusions regarding these potential wetland impacts.

Plant Site

The majority of the Plant Site is located in the Embarrass River watershed, upstream of the Embarrass River chain of lakes. A small portion of the Plant Site, including stormwater from the Process Plant Area, and Areas 1 and 2 Shops, drains south to Second Creek. Under existing conditions, groundwater and surface water seepage from the existing LTVSMC tailings basin drain towards Unnamed (Mud Lake) Creek to the north, Trimble Creek to the northwest, and Unnamed Creek to the west. Runoff from the outer slopes of the existing LTVSMC tailings basin is tributary to these creeks. Tributaries to the Embarrass River, located between the existing LTVSMC tailings basin and the Embarrass River, which may potentially be affected by the Project include Unnamed (Mud Lake) Creek, Trimble Creek, and Unnamed Creek. Other tributaries located between the Tailings Basin and the Embarrass River that are

not expected to be affected by the Project include Spring Mine Creek, which drains LTVSMC's former Mine Area 5N, (another) Unnamed Creek, and Heikkila Creek, and Bear Creek.

The hydrogeologic setting of the Embarrass River watershed is broadly similar to the Partridge watershed, although the unconsolidated deposits are generally thicker and more continuous north of the Plant Site area along the Embarrass River valley. As is the case at the Mine Site, wetlands are abundant in the Plant Site and saturated conditions generally exist less than 10 feet below the ground surface.

Transportation and Utilities Corridors
The infrastructure corridors for roads, rail lines, and pipelines connecting the Mine Site and Plant Site crosses Wetlegs Creek, Longnose Creek, and Wyman Creek.

Watersheds of Interest

The Project's proposed impacts would occur in wetlands in the Embarrass River and Partridge River watersheds, which are in the St. Louis River watershed. The MPCA has evaluated these wetlands, as well as other water bodies (including receiving and downstream waters and the wetlands directly and indirectly impacted) in connection with this 401 Certification.

Use Classifications
Minnesota has adopted beneficial uses applicable to the waters surrounding the Project area. The receiving waters for discharges from the Project in the Embarrass River watershed are headwater wetlands, which are class 2D, 3D, 4C, 5 and 6 waters, that drain to Trimble and Unnamed Creeks,. Trimble and Unnamed Creeks themselves are class 2B, 3C, 4A, 4B, 5, and 6 waters. The receiving water for discharge in the Partridge River watershed is Second Creek, which is a class 2B, 3C, 4A, 4B, 5, and 6 water. All the above-identified waters are located in the Lake Superior basin and are classified as Outstanding International Resource Waters (OIRWs). The nearest downstream restricted Outstanding Resource Value Water (ORVW) is Lake Superior. There are no downstream prohibited ORVWs.

Use Classification Descriptions
Minnesota rules define the beneficial uses to be protected. Minn. R. 7050.0140.

Class 1 waters, domestic consumption.
Domestic consumption includes all waters of the state that are or may be used as a source of supply for drinking, culinary or food processing use, or other domestic purposes and for which quality control is or may be necessary to protect the public health, safety, or welfare.

Class 2 waters, aquatic life, and recreation.
Aquatic life and recreation includes all waters of the state that support or may support fish, other aquatic life, bathing, boating, or other recreational purposes, and for which quality control is or may be necessary to protect aquatic or terrestrial life or their habitats, or the public health, safety, or welfare.

Class 3 waters, industrial consumption.
Industrial consumption includes all waters of the state that are or may be used as a source of supply for industrial process or cooling water, or any other industrial or commercial purposes, and for which quality control is or may be necessary to protect the public health, safety, or welfare.

Class 4 waters, agriculture, and wildlife.
Agriculture and wildlife includes all waters of the state that are or may be used for any agricultural purposes, including stock watering and irrigation, or by waterfowl or other wildlife, and for which quality control is or may be necessary to protect terrestrial life and its habitat, or the public health, safety, or welfare.

Class 5 waters, aesthetic enjoyment, and navigation.
Aesthetic enjoyment and navigation includes all waters of the state that are or may be used for any form of water transportation or navigation or fire prevention, and for which quality control is or may be necessary to protect the public health, safety, or welfare.

Class 6 waters, other uses, and protection of border waters.
Other uses include all waters of the state that serve or may serve the uses in Minn. R. 7050.0140, subparts 2 to 6, or any other beneficial uses not listed in this part, including, without limitation, any such uses in this or any other state, province, or nation of any waters flowing through or originating in this state, and for which quality control is or may be necessary for the declared purposes in this part, to conform with the requirements of the legally constituted state or national agencies having jurisdiction over such waters, or for any other considerations the MPCA may deem proper.

Certification requirements
States are required to set water quality standards under the Clean Water Act. Section 401 of the Clean Water Act is designed to prevent the federal government from issuing a permit for a project that will cause a violation of a state water quality standard. State water quality standards set the conditions that must exist in order to protect beneficial uses, such as drinking water, a healthy aquatic community, fish consumption, and recreational uses such as swimming.

When a project that will impact waters within Minnesota requires a federal permit, the MPCA reviews the project under Section 401 to provide reasonable assurance that the project as permitted will not violate the water quality standards that the MPCA has established for that water body. The federal agency cannot issue the permit until the MPCA has either certified that the project is reasonably assured to comply with water quality standards or waived its review. If the MPCA chooses to certify a project, it may condition its certification with specific requirements to protect water quality and ensure compliance with state water quality standards; these conditions become conditions of the resulting federal permit. This review of federally permitted projects gives the Section 401 Certification program a unique role in water quality protection.

Legal Requirements
Section 401 allows states up to one year to act on requests. Failure to act results in waiver of the state's ability to certify. PolyMet requested Section 401 Certification in 2013, but withdrew its request less than one year later due to the ongoing environmental review. On August 2, 2016, the MPCA posted the Section 401 Re-initiation Cover Letter and associated Section 401 Certification request documents at its website: https://www.pca.state.mn.us/quick-links/401-certification-northmet. The MPCA sent an email to all registered interested parties at that time. PolyMet withdrew and re-submitted its Section 401 Certification request on July 21, 2017.

Co-lead agencies DNR, U.S. Forest Service, and USACE prepared a joint state-federal EIS regarding the Project. Pursuant to Minn. R. ch. 4410, the DNR determined on March 3, 2016, that the Final EIS for the proposed NorthMet Mining Project and Land Exchange was adequate. The DNR further determined on

March 17, 2017, that a supplemental EIS was not necessary for a change to the Project layout relating to dam construction. The DNR also determined on April 11, 2017, that a supplemental EIS was not necessary for a Project change to combine the waste water treatment systems for both the Mine Site and Plant Site into one building at the Plant Site. As a result, there is no remaining environmental review required for the Project under Minnesota Statutes chapter 116D.

Antidegradation review

Minnesota's antidegradation standards and requirements identified in Minnesota Rules parts 7050.0250 to 7050.0335 apply to new or expanded discharges of any pollutant to surface waters. Minnesota has additional antidegradation standards specific to the Lake Superior basin in Minnesota Rules parts 7052.0300 to 7052.0330 that apply to new or expanded discharges of bioaccumulative substances of immediate concern. In addition to the Section 401 Certification request, PolyMet has also applied for additional authorizations from the MPCA that trigger antidegradation requirements, including an individual NPDES/SDS wastewater permit and general NPDES permit coverage for industrial and construction stormwater. To avoid redundancy, and in accordance with Minn. R. 7050.0325, the MPCA antidegradation review for the NPDES permit addresses the antidegradation assessment requirements identified in Minn. R. 7050.0280, "Procedures for Individual NPDES Wastewater Permits and Individual NPDES Storm Water Permits for Industrial and Construction Activities." The antidegradation review for the Section 401 Certification addresses only the requirements specific to Section 401 Certifications identified in Minn. R. 7050.0285, "Procedures for Section 401 Certifications of Individual Federal Licenses and Permits," focusing on physical alteration and indirect impacts to surface waters, and associated mitigation requirements.

PolyMet's submissions provided the MPCA with the information necessary to determine that the antidegradation standards in Minn. R. 7050.0265 are satisfied. The MPCA has made a preliminary determination that the submittal demonstrates that any water quality degradation caused by the proposed Project will be prudently and feasibly avoided and minimized, existing and beneficial uses will be protected, and the proposed activity is necessary to accommodate important economic or social changes in the geographic area in which degradation of existing high water quality is expected.

Proposed Section 401 Certification Conditions

The MPCA proposes to certify the Project with the conditions summarized and explained below. The MPCA has determined that with the inclusion of these conditions, there is reasonable assurance that the proposed activities included in the Project will be conducted in a manner that will not violate applicable water quality standards.

Condition 1. Water Quality Monitoring (to address potential air deposition)

Summary of Conditions

The MPCA proposes to require stream and wetland water quality monitoring to provide data to assess potential effects on water quality resulting from air deposition of sulfur and metal air emissions associated with the Project. The proposed conditions would require/address:

- Baseline surficial groundwater monitoring in 22 wetland hydrology monitoring locations to provide information on mercury, methylmercury, and other parameters prior to Project mining operations. The conditions specify monitoring sites, frequency, duration, and parameters for sampling;

- Monitoring in five stream locations to provide information on mercury and methylmercury concentrations both prior to, and throughout the duration of, Project mining operations. The conditions specify monitoring sites, frequency, duration, and parameters for sampling;
- Monitoring in two wetland locations in the Wetland of Interest, as identified in PolyMet's cross-media analysis referenced below, to provide data regarding copper and cobalt concentrations both prior to, and throughout the duration of, Project mining operations. The conditions specify requirements for monitoring sites (which will be selected by the permittee), frequency, duration, and parameters for sampling;
- Monitoring in one stream location to provide data regarding arsenic and cobalt concentrations for comparison to class 2Bd water quality standards in Colby Lake, which is a drinking water source downstream from the monitoring location; the conditions require compliance with NPDES/SDS permit monitoring requirements, which address monitoring site, frequency, duration, and parameters for sampling;
- Conditions also specify analytic methods and requirements to ensure data quality and usability.

Rationale

As noted above, Section 401 of the Clean Water Act requires any applicant for a federal license or permit to provide the permitting agency a certification from the state if the activity may result in any discharge into the navigable waters. In addition, subsection (d) of Section 401 "expands the state's authority to impose conditions on the certification of a project." PUD No. 1 of Jefferson Cty. v. Washington Dep't of Ecology, 511 U.S. 700, 711 (1994). The U.S. Supreme Court has interpreted this subsection to broaden the effect of a Section 401 Certification:

> The language of this subsection ... refers to the compliance of the applicant, not the discharge. Section 401(d) thus allows the State to impose "other limitations" on the project in general to assure compliance with various provisions of the Clean Water Act and with "any other appropriate requirement of State law."

As a result of this requirement, the MPCA requested PolyMet conduct a cross-media analysis to address potential water quality concerns from dust deposition from the Project. This analysis included air modeling of potential facility-generated dust particles, an evaluation of the potential for release of sulfate and metals from oxidation of the deposited dust, and the resulting potential for impact on the quality of down-gradient waters, including wetlands. PolyMet submitted its Cross-Media Analysis to Assess Potential Effects on Water Quality from Project-Related Deposition of Sulfur and Metal Air Emissions on October 31, 2017, with supplemental information submitted November 29, 2017. The analysis was reviewed by the MPCA's technical experts and the resulting conclusions were considered in developing the Section 401 Certification.

Based on its review of Cross-Media analysis, the MPCA concluded:

1. The analysis developed a reasonable and protective scenario that showed no measurable changes of mercury in water or fish from Project-related deposition of sulfur.
2. There will be no exceedances of copper, cobalt, and arsenic Class 2D water quality standards or to any other numeric water quality criteria from Project-related air emissions or the cumulative impact of Project-related air emissions.
3. The Project will not result in any measurable changes to water quality downstream of the Project in the St. Louis River, including downstream locations at Forbes (upper St. Louis River).

The MPCA did conclude that there is sufficient uncertainty that additional monitoring is necessary to confirm the expected outcomes and ensure that actual water quality will conform with the water quality expected by the MPCA. The Section 401 Certification has incorporated the monitoring recommended by the MPCA's technical review.

Collection and analysis methods for total mercury, methylmercury, metals, and other parameters are specified in the Section 401 Certification. These requirements will ensure data quality and usability, as well as compliance with Minnesota Rules governing laboratory procedures.

Condition 2. Wetland Hydrology Monitoring
Summary of Conditions
The MPCA proposes to require continued wetland hydrology monitoring to provide data that help the agency ensure that wetland functions and values are adequately protected and/or replaced where necessary. The proposed conditions include:

- Adherence to monitoring plans specified in the Monitoring Plan for Potential Indirect Wetland Impacts (submitted by PolyMet in December 2017) or any updates to that plan approved by the applicable agencies.
- Specification of potential triggers that would require evaluation of data by PolyMet and the MPCA regarding the need for adaptive management, increased monitoring, and/or additional compensatory mitigation.

Rationale
PolyMet developed a draft Monitoring Plan for Potential Indirect Wetland Impacts in early 2016. PolyMet updated the plan in December 2017 to address comments made by wetland experts from the USACE, DNR, and MPCA.

The MPCA determined the proposed monitoring locations, delineation checks, and monitoring frequency are adequate to identify any potential indirect wetland impacts attributable to the Project. The certification and monitoring plans set clear criteria for determining when conditions deviate from pre-Project baseline conditions. The certification ensures protectiveness while allowing flexibility through the use of adaptive management in response to any deviations from baseline conditions that result. Additional monitoring may be necessary to determine location, extent, type, and cause of potential indirect wetland impacts. Should any impacts due to the Project occur or be predicted to occur, the MPCA may require actions to prevent or reverse impacts. If those methods cannot avoid impacts, minimization and/or replacement will be required in accordance with applicable statutes and regulations.

Condition 3. Wetland Vegetation Monitoring
Summary of Conditions
The draft certification requires continued wetland vegetation monitoring to provide data that help the agency to ensure that wetland functions and values are adequately protected and/or replaced where necessary. The proposed conditions would require/address:

- Adherence to monitoring plans specified in the Monitoring Plan for Potential Indirect Wetland Impacts (submitted by PolyMet in December 2017) or any updates to that plan approved by the applicable agencies.

Rationale

PolyMet developed a draft Monitoring Plan for Potential Indirect Wetland Impacts in early 2016. PolyMet updated the plan in December 2017 to address comments made by wetland experts from the USACE, DNR, and MPCA.

The MPCA determined the proposed monitoring locations and frequency are adequate to identify any potential indirect wetland impacts attributable to the Project. The certification and monitoring plans set clear criteria for determining when conditions deviate from pre-Project baseline conditions. The certification ensures protectiveness while allowing flexibility in response to any deviations from baseline conditions that result through the use of adaptive management. Additional monitoring may be proposed or required if it is necessary to determine location, extent, type, and cause of potential indirect wetland impacts. For example, a change in plant community could indicate a change in wetland hydrology, or some other change of function or values. Should any impacts attributable to the Project become apparent, adaptive management must be implemented to prevent or reverse impacts. If those methods cannot avoid impacts, minimization and/or replacement will be required in accordance with applicable statutes and regulations.

Condition 4. Reporting
Summary of Conditions
The MPCA proposes to require annual reports for stream and wetland monitoring required by conditions 1-3, due by March 31 for each preceding calendar (or partial calendar) year, beginning the year after construction activities begin. The conditions require/specify:

- Format and content of monitoring reports, including raw data requirements and data analyses
- Permittee-provided recommendations for adaptive management such as additional monitoring locations or frequencies, or potential treatment/mitigation methods and requirements for MPCA approval regarding adaptive management plans
- Prompt notification if data indicates a water quality standard has been violated prior to submittal of annual monitoring reports, and a requirement for a proposal to monitor and address sources of the violation

Rationale
Annual reporting allows the MPCA to ensure the Project is progressing according to approvals and conditions. Data, analysis, and recommendations will inform the potential need for adaptive management additional data collection, or impact mitigation to ensure the Project remains compliant with water quality standards. The MPCA determined that the potential impacts requiring adaptive management or mitigation would typically not occur quickly, so an annual report is generally sufficiently frequent to address any effects. This approach is consistent with the reporting required in other permits. In the event of a violation of water quality standards, the certification requires notification to the agency consistent with state rule. Noncompliance that could endanger human health or the environment must be reported within 24 hours and other noncompliance of certification requirements must be reported within 30 days, as required by Minnesota Rule 7001.0150 subpart 3(K) and (L).

Condition 5. Stream Hydrology Monitoring
Summary of Conditions
The MPCA proposes to include a condition referencing the stream hydrology monitoring required by the DNR Water Appropriation permits for the Project. If monitoring indicates an annual average change in hydrology of greater than 20% from existing conditions at the Plant Site (conditions before the implementation of the tailings basin pumpback systems, which are short term mitigation measures as part of the Cliffs Erie Consent Decree) in Unnamed Creek, Trimble Creek, Unnamed (Mud Lake) Creek, or

Second Creek at the Plant Site, the certification requires the permittee submit to the MPCA the stream hydrology data, along with an analysis of whether existing and beneficial uses of the stream(s) have been affected. The certification also requires a proposal for adaptive management, including possible mitigation, as appropriate, to address any loss of existing uses.

Rationale

Stream monitoring must comply with the DNR's water appropriation requirements. The monitoring must be sufficient to determine if the streams referenced in the summary immediately above, which were the surface waters addressed in the EIS for this purpose, will remain within an acceptable range of their existing hydrology. A change of more than 20% to the hydrologic regime of a stream, on an annual average basis, is considered a "negative impact to surface waters – a change in hydrology sufficient to cause ecosystem harm or alter riparian uses long-term" per the "Report to the Minnesota State Legislature: Definitions and Thresholds for Negative Impacts to Surface Waters" (found at http://files.dnr.state.mn.us/waters/gwmp/thresholds/gw-thresholds-project_report.pdf). Although the DNR regulates stream hydrology, major hydrologic changes can affect existing uses and state water quality standards under the Clean Water Act. The MPCA is responsible for protecting existing uses, so a negative impact to a stream may require mitigation in accordance with Minn. R. 7050.0265.

Condition 6. Compensatory Mitigation

Summary of Conditions

The MPCA proposes to require compensatory mitigation for all permanent direct and indirect surface water impacts in order to ensure preservation of existing uses where there are physical alterations to a surface water and compliance with Minn. R. 7050.0186 and 7050.0265.

- Mitigation for wetland impacts must be provided in accordance with the 2009 USACE Final St. Paul District Policy for Wetland Compensatory Mitigation in Minnesota. The MPCA expects that mitigation will occur through the purchase of wetland mitigation bank credits from the Superior Mitigation Bank, located in Bank Service Area #1, in the St. Louis River Watershed.
- The MPCA will also require that any deviations by PolyMet from its proposed compensatory mitigation plans be approved by the agency in writing, and require notification within 30 days of changes in replacement credits currently available to PolyMet.

Rationale

The USACE policy sets a base mitigation ratio of 1.5:1 (meaning for each acre of impacted wetland, 1.5 acres of mitigation credit are expected), and considers higher ratios for higher quality or difficult-to-replace wetlands, such as forested swamp and bog communities. The USACE policy then provides certain ratio-reduction incentives for mitigation that occurs within the same Bank Service Area as the project impacts, as well as for mitigation that occurs in advance of project impacts.

The Project Wetland Replacement Plan (Wetland Replacement Plan) submitted by PolyMet in December 2017 states that mitigation will occur through the purchase of wetland mitigation bank credits from the Superior Mitigation Bank, located in Bank Service Area #1, in the St. Louis River Watershed. Because the applicant intends to provide mitigation in the same Bank Service Area as the Project, and also the same major watershed (St. Louis River), and the use of mitigation bank credits ensures that mitigation will occur prior to Project impacts occurring, the ratio-reduction incentives are appropriate. The final mitigation package described in Large Table 6 "Wetland Mitigation Utilizing USACE-Approved Wetland Bank Credits from BSA #1" of the Wetland Replacement Plan is sufficient to ensure replacement of the "diminished or lost designated uses of the wetlands that will be physically altered" (Minn. R. 7050.0186) and the "lost surface water" (Minn. R. 7050.0265).

PolyMet has secured the option for up to 1,800 wetland credits from the Superior Mitigation Bank, which is sufficient to address wetland mitigation requirements according to the St. Paul District policy for expected direct and indirect wetland impacts, with a surplus of over 500 credits. These credits would be available for the mitigation of potential indirect wetland impacts described in the Wetland Replacement Plan, if necessary.

As discussed above, Section 401 certification (and expected Section 404 permit) conditions and the wetland monitoring plans describe how water quality, hydrology, and vegetation monitoring would be used to identify indirect wetland impacts and resultant mitigation requirements, including criteria for increasing or decreasing these mitigation requirements.

Condition 7. Standard Conditions

Summary of Conditions

The MPCA proposes to include standard conditions to address Project work. The proposed conditions require:

- The permittee to inform all employees and/or contractors associated with the Project of the Section 401 Certification conditions
- Notification to the MPCA within 30 days of a violation of the certification
- Notification of additional proposed water quality impacts, prior to their occurrence so that the agency may determine whether a modification of the Section 401 Certification is needed
- Incorporation of general conditions of Minn. R. 7001.0150, subp. 3 and 7001.1080 supb 2-9

Rationale

Standard conditions incorporate general requirements that MPCA is required by rule to incorporate into a Section 401 Certification.